



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE/NOAA FISHERIES

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CRUISE REPORT¹

VESSEL: *Oscar Elton Sette*, Cruise 04-02 (OES-011)

**CRUISE
PERIOD:** February 3 - February 26, 2004

**AREA OF
OPERATION:** Territory of American Samoa (Fig. 1)

ITINERARY:

29 Jan *Oscar Elton Sette* arrived at Pago Pago Harbor, Tutuila, American Samoa to complete OES-04-01. Continued work to create replacement for the Tethered Optical Assessment Device (TOAD) lost on OES-04-01.

30 Jan Launched Coral Reef Ecosystem Division (CRED) Research Vessel *AHI* (Acoustic Habitat Investigator). Joyce Miller of the Habitat Mapping Team and CDR Ken Barton of the *Oscar Elton Sette* were interviewed by a local television station about upcoming cruise. Disembarked Ed DeMartini, Alan Friedlander, Jason Phillabotte, Brian Zgliczynski, Beth Flint. Embarked Russell Brainard, Sun He Bak, Robert Schroeder, Terry Donaldson, and Craig Musberger. Continued work to create replacement for the TOAD lost on OES-04-01.

31 Jan Conducted meeting of scientific party and Operations Officer for OES-04-02 to prepare for cruise. Fish team conducted training dive to work on rapid ecological assessment (REA) survey protocols. Continued work to create replacement for the TOAD. Disembarked Jamie Gove.



¹ PIFSC Cruise Report CR-05-008
Issued 2 December 2005

- 01 Feb Conducted 4-hour operational test of *AHI* to prepare for transit to Manua Islands. Conducted meeting of fish and benthic REA teams to determine survey stations for cruise. Continued work to create replacement for TOAD. Disembarked June Firing.
- 02 Feb Conducted shipboard orientation for new scientists and dive safety management meeting and drill for all scientists. Chief Scientist Russell Brainard gave a presentation about the cruise to about 30 mayors of the villages of American Samoa to familiarize them with our objectives and upcoming activities. Meeting was arranged by Fatima Sauafea of the Pacific Islands Regional Office and Ray Tulafono, Chief of the American Samoa Department of Marine and Wildlife Resources (DMWR). This meeting was also attended by CDR Ken Barton, Joyce Miller, and Bruce Appelgate. Rusty Brainard and Ray Tulafono were interviewed by the local television station. Rusty Brainard, Joyce Miller, and Bruce Appelgate participated in an American Samoa geographic information systems (GIS) meeting to discuss cruise activities. Rusty Brainard participated in planning meetings with Peter Craig of the National Park Service, Chris Hawkins of the AS Department of Commerce, and Doug Fenner of DMWR. Purchased six drums of gasoline for small boats. Embarked Jean Kenyon, Ron Hoeke, and Megan Moews.
- 03 Feb Met with Representative Wallace Thompson of Swains Island. Cast off R/V *AHI* with Scott Ferguson and Joyce Miller. Departed Pago Pago Harbor, Tutuila, American Samoa at 0940 with the following scientific staff on board: Russell Brainard, Robert Schroeder, Joe Laughlin, Kim Page, Ronald Hoeke, Molly Timmers, Jean Kenyon, Jeremy Jones, Megan Moews, Christy Kistner, Terry Donaldson, Sun He Bak, John Rooney, Craig Musberger, Scott Godwin, Jim Maragos, Nancy Daschbach, and Penekosova Peau en route to Manua Islands with R/V *AHI* in escort. Conducted shipboard orientation briefing, fire and emergency drill, abandon ship drill, dive safety management drill, and recompression chamber exercise. Deployed satellite-tracked drifter SVP #44769 at mid-point between Tutuila and Ofu at position 14°15.065'S, 170°06.649'W. Arrived at Ofu Island at 1630. *AHI* safely moored alongside pier. Conducted nighttime operations consisting of four TOAD drop camera surveys with the newly rebuilt camera system. All systems worked well. Conducted one deepwater conductivity-temperature-depth CTD to 500 m. CTD winch failed to stop properly during upcast. Conducted three acoustic Doppler current profiler (ADCP) transects.
- 04 Feb Conducted 6 towed-diver habitat and fish surveys, 3 fish and benthic REA surveys, and 23 shallow water CTDs around Tau Island. All surveys went from northeast to southwest along the south coast.

Deployed subsurface temperature recorder #1151 in 6.1 m of water on the south side of Tau at position 14°15.0475'S, 169°26.8015'W. Mooring team met with village chief at Tau to get approval to deploy sea surface temperature (SST) buoy. Conducted tests of CTD winch. Conducted four TOAD drop camera surveys and four ADCP transects around Manua Islands.

- 05 Feb Conducted 6 towed-diver habitat and fish surveys, 3 fish and benthic REA surveys, and 14 shallow water CTDs around the northern half of Tau Island. Deployed SST buoy #306-025 in 13.7 m of water on the west side of Tau just south of Tau Village harbor at position 14°14.6229'S, 169°30.5662'W and subsurface temperature recorder (STR) #1152 in 10.1 m of water near large coral bommies at east end of Tau at position 14°14.1268'S, 169°25.1446'W. Conducted two deepwater CTDs, three TOAD drop camera surveys, and four ADCP transects.
- 06 Feb Conducted 6 towed-diver habitat and fish surveys, 3 fish and benthic REA surveys, and 20 shallow water CTDs around the southeastern half of Olesega and Ofu Islands and within the shallow pools of Ofu Lagoon. Deployed STR#1149 in 9.8 m of water at the REA monitoring site off Olesega Village at position 14°10.9052'S, 169°37.5972'W. Conducted one shipboard CTD and three ADCP transects. Conducted four TOAD drop camera surveys. Deployed satellite-tracked SVP drifter #44765 between Olesega and Tau at position 14°18.315'S, 169°32.656'W.
- 07 Feb Conducted 6 towed-diver habitat and fish surveys, 3 fish and benthic REA surveys, and 25 shallow water CTDs around the northwestern half of Olesega and Ofu Islands. Deployed STR#1148 in 6.4 m of water on the northwest side of Olesega near the REA monitoring site off Sili Village at position 14°09.8358'S, 169°37.4920'W. Deployed STR#1150 in 6.1 m of water on the west side of Ofu near the REA monitoring site off Ofu Village at position 14°10.4174'S, 169°40.8990'W. Conducted three TOAD drop camera surveys. Departed Manua Islands at 2230 en route to Rose Atoll.
- 08 Feb Arrived Rose Atoll at 0730. Conducted six towed-diver habitat and fish surveys around entire atoll at mid-depths. Conducted three fish and benthic REA surveys on northeast and southeast facing forereef slopes. Retrieved 2002 CREWS buoy #262-005 (Argos ID 10214) and deployed new CREWS buoy #262-004 (Argos ID 27267) at same position 14°33.0840'S, 168°09.6110'W. Conducted one shallow water CTD. Shipboard ADCP system and CTD winch failed. After troubleshooting, ADCP was apparently repaired around 2300. Conducted four ADCP transects around Rose Atoll. Water depths too deep to allow TOAD camera surveys. Deployed satellite tracked drifter SVP#44767 east of Rose Atoll at position 14°34.415'S, 168°12.559'W.

- 09 Feb Conducted six towed-diver habitat and fish surveys around entire atoll at deep (20-25 m) and shallow (5-10 m) depths. Conducted three fish and benthic REA surveys on southeast and southwest facing forereef slopes. Retrieved Aanderaa RCM9 current meter #417 deployed in 3.4 m of water in the sill of the high velocity pass into Rose Atoll at position 14°32.1110'S, 168°09.2890'W. Conducted 22 shallow water CTDs. Conducted 5 shipboard CTDs and 12 ADCP transects around atoll.
- 10 Feb Conducted six towed-diver habitat and fish surveys around deep (20-25 m) northwest and southwest reef slopes, the lagoon interior, and backreefs. Conducted three fish and benthic REA surveys on southwest facing forereef slopes near the shipwreck site. Deployed STR#1047 in 3.4 m of water on coral pinnacle next to CREWS buoy at position 14°33.0775'S, 168°09.6114'W. Deployed STR#1146 in 7.9 m of water on same coral pinnacle next to CREWS buoy at position 14°33.0753'S, 168°09.6116'W. Conducted 21 shallow water CTDs, 4 shipboard CTDs, and 8 ADCP transects around atoll.
- 11 Feb Conducted four towed-diver habitat and fish surveys around deep (20-25 m) east and north reef slopes, the lagoon backreefs. Conducted three fish and benthic REA surveys on northwest facing forereef slope and two lagoon pinnacle reefs. Deployed STR#1147 in 7.9 m of water on engine block of wrecked longliner at REA monitoring site at position 14°33.0407'S, 168°10.0195'W. Deployed wave and tide recorder (WTR)#0364 in 17.1 m of water on the east reef terrace at position 14°32.8660'S, 168°08.2564'W. Conducted three shipboard CTDs around atoll. Deployed STR#1145 in 2.4 m of water at REA monitoring site on pinnacle just inside pass at position 14°32.2675'S, 168°09.2050'W. ADCP failure prevented current profiler transects. Departed Rose Atoll at 2230 en route to Tau Island.
- 12 Feb Arrived at Tau Island at 0730. Conducted six towed-diver habitat and fish surveys around deep (20-25 m) and shallow (5-10 m) north and west reef slopes. Conducted three fish and benthic REA surveys on the north, northwest, and west forereef slopes off Tau Villages. Conducted two test radiometry casts of the Biospherical multichannel radiometer. Conducted five TOAD drop camera surveys and three shipboard CTDs.
- 13 Feb Conducted six towed-diver habitat and fish surveys around deep (20-25 m) and shallow (5-10 m) east and south reef slopes of Olesega and Ofu Islands. Conducted three fish and benthic REA surveys off east Olesega, and south and west Ofu. Conducted shallow water biospherical radiometer casts off Ofu Island. Conducted shallow water CTD transect in Ofu Lagoon. Conducted five TOAD drop camera surveys and two shipboard CTDs off Olesega and Ofu Islands.

- 14 Feb R/V *AHI* arrived alongside at 0630 to transfer personnel and equipment. Embarked scientist Lara Hansen of the World Wildlife Fund at 0645 and departed Manua Islands en route to Tutuila. Arrived off Tutuila at 1230 and disembarked scientists Daschbach and Hansen via small boat. Embarked scientist Stephani Holzwarth and departed for Swains Island at 1345.
- 15 Feb Arrived at Swains Island at 1200. Conducted four towed-diver habitat/fish surveys around northwest, north, northeast, and southeast forereefs. Conducted two fish and benthic REA surveys. Conducted one shallow water CTD. Conducted six bioacoustic transects and four shipboard CTDs.
- 16 Feb Conducted six towed-diver habitat/fish surveys around Swains Island. Conducted three fish and benthic REA surveys. Recovered Ocean Data Platform (ODP) #267-001. Deployed STR#1142 at former ODP anchor in 14 m of water at position 11°03.5130'S, 171°05.4550'W. Conducted 16 shallow water CTDs and several radiometry casts. Ship's crew and some scientific staff visited Swains Island. Conducted seven bioacoustic transects and four shipboard CTDs. Deployed satellite-tracked SVP drifter #29109 at position 11°05.729'S, 171°05.512'W.
- 17 Feb Conducted four towed-diver habitat/fish surveys and two drop dive habitat/fish surveys around Swains Island. Conducted three fish and benthic REA surveys on western forereef. Conducted one invertebrate and algae survey of the shallow backreef. Conducted 12 shallow water CTDs in Swains Lake and around lagoon. Conducted CTD tow in shallow lagoon. USPHS Medical Officer diagnosed patient from Swains Island needing a medical evacuation. Embarked patient Rapeti Ogevai and her 1-year-old daughter from Swains Island for medical evacuation to Pago Pago at 1745 and immediately departed Swains Island en route to Pago Pago.
- 18 Feb Arrived at Pago Pago at 1400 to disembark patient Ogevai and her daughter. Launched three REA boats at 1445. Embarked scientist Fatima Sauafea. Departed Pago Pago Harbor at 1520. Conducted one towed-diver habitat/fish survey and one fish and benthic REA survey over Taema Bank. Conducted six TOAD drop camera surveys along southern bank of Tutuila, one shipboard CTD, and four bioacoustic transects.
- 19 Feb Conducted six towed-diver habitat/fish surveys around Aunuu Island and east end of Tutuila. Conducted three fish and benthic REA surveys off Aunuu and the northeast side of Tutuila. Retrieved Aunuu SST buoy #268-002 (Argos ID23494) and redeployed SST buoy #306-022 (Argos ID30585) in 7.6 m of water at the same position 14°17.0229'S, 170°33.7357'W. Conducted 20 shallow water CTDs and 8 radiometry casts. Conducted six TOAD drop camera surveys of east and northeast

- bank of Tutuila. Conducted one shipboard CTD and three bioacoustic transects.
- 20 Feb Conducted six towed-diver habitat/fish surveys along northeast coast of Tutuila. Conducted three fish and benthic REA surveys along northeast and north coast of Tutuila. Conducted 19 shallow water CTDs and 4 radiometry casts. Deployed STR#1143 at REA site Tut-5 in Masafau Bay in 5.8 m of water at position 14°15.1163'S, 170°37.4250'W. Conducted seven TOAD drop camera surveys of east and northeast bank of Tutuila. Conducted one shipboard CTD. Conducted three bioacoustic transects.
- 21 Feb Conducted six towed-diver habitat/fish surveys along north coast of Tutuila. Conducted three fish and benthic REA surveys along north coast of Tutuila. Large long period swell (16 sec) resulted in high surge and low visibility. Conducted 20 shallow water CTDs and five radiometry casts. Deployed SST buoy #306-023 (Argos ID30595) in 8.2 m of water in Fagasa Bay at position 14°17.0615'S, 170°43.3471'W to replace SST buoy #268-001 (Argos ID23489), which broke its mooring and washed ashore during Hurricane Heta on January 5, 2004. Conducted seven TOAD drop camera surveys of north, northwest, and southwest banks of Tutuila. Conducted one shipboard CTD and three bioacoustic transects.
- 22 Feb Conducted six towed-diver habitat/fish surveys along southeast coast of Tutuila. Conducted three fish and benthic REA surveys along southeast coast of Tutuila. Conducted 25 shallow water CTDs and 9 radiometry casts. Conducted five TOAD drop camera surveys of south bank of Tutuila. Conducted one shipboard CTD and five bioacoustic transects.
- 23 Feb Conducted six towed-diver habitat/fish surveys along south coast of Tutuila from Pago Pago to Larsen's Bay. Conducted three fish and benthic REA surveys along southeast coast of Tutuila. Conducted 31 shallow water CTDs, 1 lagoon CTD tow. Deployed STR#1141 in 1.2 m in lagoon off airport at position 14°19.8301'S, 170°42.1544'W. Conducted five TOAD drop camera surveys of south bank of Tutuila. Conducted one shipboard CTD. Conducted one bioacoustic transect.
- 24 Feb Conducted six towed-diver habitat/fish surveys along southwest coast of Tutuila from Step's Point to Point Taputapu. Conducted three fish and benthic REA surveys at Larsen's Bay, Fagatele Bay, and Leone Bay along south coast of Tutuila. Recovered Aanderaa RCM9 current meter #415 deployed in 2002 off Step's Point at position 14°22.4960'S, 170°45.4993'W. Deployed Wave and Tide Recorder (WTR) #0385 in 22 m of water at same position. Deployed two subsurface temperature recorders (STR #1144) in 20.1 m of water at position 14°21.8706'S, 170°45.7557'W and STR#1371 in 6.7 m of water at position 14°21.8413'S, 170°45.7197'W in Fagatele Bay National Marine

Sanctuary. Conducted seven TOAD drop camera surveys of south bank of Tutuila. Conducted one shipboard CTD and five bioacoustic transects. Deployed SVP drifter #29110 at position 14°19.518'S, 170°58.016'W.

- 25 Feb Conducted six towed-diver habitat/fish surveys along northwest coast of Tutuila, including one offshore reef. Conducted three fish and benthic REA surveys along west and northwest coast of Tutuila. Deployed SST buoy #306-024 (Argos ID30611) in 22 m of water at position 14°19.6940'S, 170°50.0010'W in Amanave Bay to replace SST Buoy #268-004, which broke from it's mooring during Hurricane Heta on January 5, 2004. Conducted 12 shallow water CTDs. Conducted five TOAD drop camera surveys of south bank of Tutuila and one shipboard CTD. Conducted one bioacoustic time series station. Deployed SVP drifter #44770 at position 14°31.186'S, 170°42.090'W.
- 26 Feb Arrived Pago Pago, Tutuila at 1015 to complete cruise. Refueled ship. Disembarked Miller.
- 27 Feb Off-loaded CRED container, boat rack, 19-ft SAFE boat, 55-gal fuel drums and racks, and ship's fuel drums for storage during OES-04-03. Conducted interview with local television station and Fatima Sauafea. Chief Scientist Brainard met with Ray Tulafono, Chief of the American Samoa Department of Marine and Wildlife Resources to discuss preliminary cruise results. Brainard and Schroeder met with Peter Craig, Chris Hawkins, Nancy Daschbach, Fatima Sauafea, and ~10 other members of the American Samoa Coral Reef Advisory Group to discuss the cruise. Disembarked Donaldson, Kenyon, Maragos, Jones, Bak, Laughlin, Kistner, and Moews.
- 28 Feb Disembarked Brainard.
- 29 Feb Disembarked Holzwarth, Hoeke, Page, Timmers, and Godwin.

MISSIONS AND RESULTS:

See Appendices

Summary Statistics:

Towed Diver Habitat/fish Surveys – 115 tows, ~231 km
 Ta'u Island – 18 tows, ~39 km
 Olesega Island – 9 tows, ~20 km
 Ofu Island- 9 tows, ~20 km
 Rose Atoll – 22 tows, ~45 km
 Swains Island – 14 tows, ~26 km

Aunuu Island – 4 tows, ~7 km
 Tutuila Island – 39 tows, ~74 km

Fish and Benthic REA Surveys - 63

Ta'u Island - 9
 Olesega Island - 4
 Ofu Island- 4
 Rose Atoll - 14
 Swains Island - 10
 Aunuu Island - 1
 Tutuila Island – 21

CREWS buoy recovery and deployment – 1

Rose Atoll - 1

Ocean Data Platform deployments - 2

Swains Island recovery - 1

SST buoy deployments - 4

Ta'u Island -1
 Aunuu Island - 1
 Tutuila Island - 2
 Fagasa Bay - 1
 Amanave Bay - 1

Aanderaa RCM9 Current Meter recoveries – 2

Rose Atoll Pass – 1
 Step's Point, Tutuila - 1

Subsurface Temperature Recorder deployments - ?

Ta'u Island – 2
 Ofu Island – ?
 Olesega Island – ?
 Rose Atoll - ?
 Tutuila Island – 4
 Fagatele Bay NMS – 2
 Airport Lagoon – 1
 Masefau Bay – 1
 Swains Island - ?

SVP satellite-tracked drifter deployments – 6

Settlement/recruitment plate recoveries/deployments – 2
 arrays

Shipboard CTDs to 500 m - 36

Shallow water CTDs -

TOAD drop camera surveys - 76

QTC acoustic habitat classification surveys - ? km
 Shipboard ADCP/TSG transects – 38 (Note- ADCP failure 2/11)

RECORDS:

The following forms, logs, charts, and data records were kept and given to the Pacific Islands Fisheries Science Center upon termination of the cruise. These include all data captured onto computer storage media during the cruise. All the records are filed there unless indicated otherwise in parentheses.

QTC acoustic seabed classification data
 TOAD digital video tapes (VHS & MDV)
 ArcView GIS track files and shape files
 ADCP DOPPLER ping data files on CD-ROM*
 CTD Station Data Log Sheet
 Seabird CTD data files on CD-ROM*
 Digital camera photos (JPG file format) on CD-ROM*
 Marine Operations Log
 Project Area and Operations Chartlets
 Scientist's Log
 SCS data files (raw & compressed) on CD-ROM*
 Station Number and Activity Log

* All data files together on the same (1) CD-ROM

SCIENTIFIC PERSONNEL:

Russell E. Brainard, Ph.D., Chief Scientist, towboard and oceanography teams, Pacific Islands Fisheries Science Center (PIFSC), Coral Reef Ecosystem Division (CRED)
 Robert E. Schroeder, Ph.D., Fishery Biologist, fish team, NOAA-UH Joint Institute for Marine and Atmospheric Research (JIMAR) and PIFSC-CRED
 Terry Donaldson, Ph.D., Reef Fish Biologist, fish team, University of Guam Marine Laboratory
 Craig Musberger, Fishery Biologist, fish team, UH-JIMAR and PIFSC-CRED
 Jean Kenyon, Ph.D., Marine Ecologist, benthic team coral specialist, UH-JIMAR and PIFSC-CRED
 Kim Page, Marine Debris Specialist, benthic team algae specialist, UH-JIMAR and PIFSC-CRED
 Nancy Daschbach, Manager, benthic team algae assistant, NOAA NOS Fagatele Bay National Marine Sanctuary
 Scott Godwin, Invertebrate Specialist, benthic team invertebrate specialist, Bishop Museum
 James Maragos, Ph.D., Coral Biologist, benthic team coral specialist, US Fish and Wildlife Service (USFWS)

Molly Timmers, Marine Debris Specialist, towboard team – habitat specialist, UH-JIMAR and PIFSC-CRED

Joe Laughlin, Marine Debris Specialist, towboard team – fish specialist, UH-JIMAR and PIFSC-CRED

Jeremey Jones, Marine Debris Specialist, towboard and benthic teams, UH-JIMAR and PIFSC-CRED

Stephani R. Holzwarth, Marine Ecosystem Research Specialist, towboard team, UH-JIMAR and PIFSC-CREI

Ronald Hoeke, Oceanographer, oceanography team, UH-JIMAR and PIFSC-CRED

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Megan Moews, Marine Debris Specialist, benthic habitat mapping team and dive master, UH-JIMAR and PIFSC-CRED

Joyce Miller, Oceanographer, benthic habitat mapping team, UH-JIMAR and PIFSC-CRED

Fatima Sauafea, , UH-JIMAR and Pacific Islands Regional Office

Penetekoso Peau, student observer, American Samoa

Lara Hansen, visiting scientist, World Wildlife Fund

(/s/Russell E. Brainard)

Submitted by: _____
 Russell E. Brainard
 Chief Scientist

(/s/Samuel G. Pooley)

Approved by: _____
 Samuel G. Pooley
 Science Director, Pacific Islands Fisheries Science Center

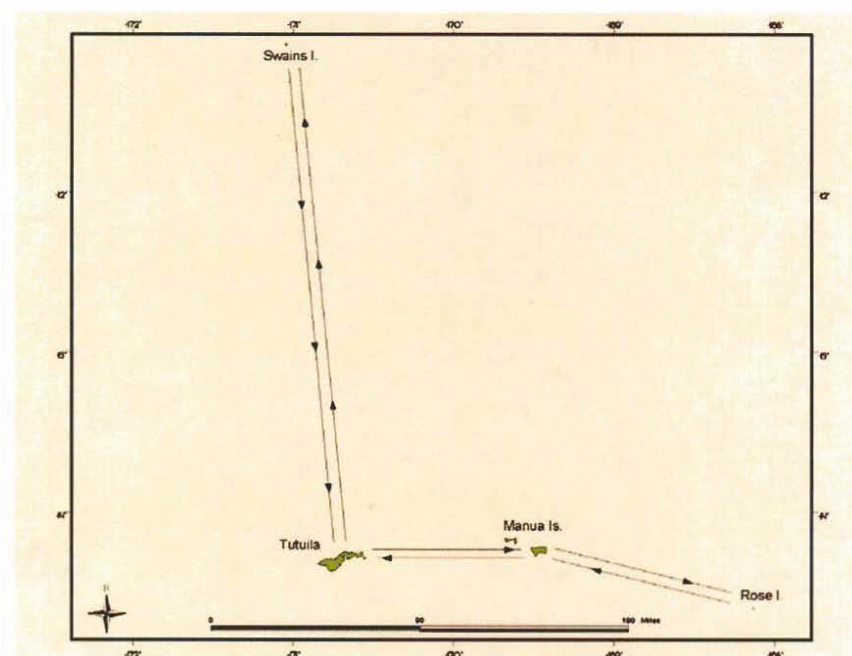


Figure 1.--Track of the NOAA Ship Oscar Elton Sette OES-04-02 (OES-11), February 3-26, 2004.